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Learning Simulation Design Using Social Media Facebook

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Abstract— E-Learning has become the most popular learning method in educational field due to the growth of Internet technologies. One of the E-Learning is Social Learning that can use social media as a learning media. This research discusses the use of social media Facebook as a learning media. The benefits of this research for educators are expected to give feedback for them on the use of social media Facebook in addition to learn activities, whereas for non-regular students, with the use of social media Facebook as a learning media it can increase the motivation of students in learning activities. The main objective of this research is to provide recommendations for the learning model that can improve the learning motivation of non-regular students. Methods of data collection use observation, literature study, and questionnaires given to 80 respondents in the category of non-regular students and the analysis of data use Microsoft Excel. From the analysis results it can be concluded that most of students choose social media as additional learning media. Hence authors design a learning model using social media Facebook.

Keywords— social media, facebook, motivation, non-regular

I. INTRODUCTION

Nowadays, the growth and use of technology have increase rapidly. One of them is the use of technology in education field. Many universities have already used technology to make a learning system as one of supporting facilities. One of the ways to improve learning quality is to provide technology-based learning known as E-Learning. E-learning enable students and teacher to conduct the learning activities using some appropriate technology even without face-to-face activity [1], with e-learning method, students can learn more than they have in lecture, they can access different source through internet and enable their critical thinking.

According to Horton [2], one type of E-Learning is Social Learning, where the individual can participate in the learning activities online by using social media. Social Networking Sites and the development of web 2.0 is very popular nowadays. Social media such as online communities is a social interaction between users. Studying with Social Learning methods provide different types of methodologies that match to the course material that will be given to students. According to the journal 'An Analysis of e-

Learning Impacts and Best Practices in Developing Countries' it is stated that it is interesting to note that e-learning can also have a positive impact on the learning aspect, especially the motivation of students. E-Learning also affects student's attitudes toward technology, instruction, and the subjects.

Student with high achiever has no issue in study, but low achiever usually the student feeling depressed and bored in study. High achiever not only study well but they fell anxiety in every knowledge and always try to increase their skill and knowledge, they tend to find another knowledge from the outside of classroom, on the other hand, low achiever do not want to study regularly and always spend their time for the activities they like. Compare with two conditions [3], teachers need to motivate and guide them in the way of teaching where the teacher can share more knowledge for high achiever and build a creative learning experience for low achiever and do not make them bored, one of the ways is using social learning through social media. As we know, social media is actively used by young generation, this way of learning will easily blend in this new era of globalization [3].

Data from Asosiasi Penyelenggara Jasa Internet Indonesia (APJII) with PUSKAKOM Universitas Indonesia stated that Indonesia has a population of 72 million active accounts in social media, mostly Generation Y aged 18-25 years. The other survey shows that over than 80% of educators are using social media and 41% of educators use social media for teaching, and this amount of using social media is increasing year after year [4]. This shows social media is popular and become an attractive tool which enable for communication and collaboration. The implementation of social media tools for learning is very good idea according to Yeo [5] Because social networking is what students are using in their daily activities and every day, this will give motivation for students to learn and study.

Some findings indicate that using social media brings positive impact. Both student and lecturer were positive of using social media such as students liked to use Youtube for

informal learning, using facebook to post the questions, sharing information [14] but learning, online materials and communication [5]. Facebook is one of the most popular social media, it attracts more than 606 million users among the worldwide. As the survey shows that students spend their most time on surfing in facebook and other social media. Facebook is expected as an enabler for teachers to deliver and communication system as facebook has its origin at Harvard University, so maybe facebook has a potential to enhance learning [6]. The challenge should be how to find the best approach available for learning in this technology area especially using social media as the powerful tools to encourage students to learn more.

II. LITERATURE REVIEW

E-Learning is the use of information and communication technology for learning. Peoples mostly think that e-learning is limited on the form of web-based learning without requiring the support of software or other learning resources. Some ways to provide learning materials are not only web-based form, but also a form of e-learning such as Standalone courses, learning games and simulations, mobile learning, social learning, and virtual-classroom courses. Many ways of e-learning method are made with different styles. This is done to adapt to the learning styles that are suitable for learners. [2].

A book titled E-Learning by Design [2], described the meaning of E-learning is: "E-learning is the use of electronic technologies to create learning experiences". In this context, the definition of E-learning is widely open so that the way to formulate, organize, and make the learning experiences can be expressed more freely. In e-learning, according to Horton [2] learning is done in three stages. Lessons which are being studied will be categorized in Absorb stage where learners start to apply the knowledge that they have gained to do training which is provided and grouped in do stage. Finally, learners will use what they have learned in everyday life at the stage of Connect.

A. Absorb Stage. The activities which learners will stimulate the understanding and knowledge of the subject they have learned. Activities can be classified into three types: presentation, reading, story by teacher, and field trips.

B. Do Stage. In this stage, learners will learn a few things from the experience in doing the test. Some examples of activities in this stage are practice activities, discovery activities, games and simulations.

C. Connect Stage. Connect is a moment where learner can connect the lessons they have learned, with the activities or work in everyday life. In this stage, learner will start thinking about what they have learned and see things in a new perspective. At this stage, it is possible for learners to discover learning material themselves. Some activities in this stage are ponder activities, questioning activities, stories by learners, job aids, research activities, original work. According to Horton [2], Social

Learning is learning through interaction with community experts and fellow learners.

Communication between participants depends on the social networking media such as online discussions, blogging, video conference, chats and text messaging. Social learning is also defined as a process of learning where the learners can learn via interaction with other people easily by sharing materials, knowledge, and information [7]. Social learning is a combination of social computing and e-learning. Social computing tools help to facilitate the collaboration and also communication among users. This tools also help educators and learners to develop knowledge [8].

Some of the tools in social learning such as:

- Blogs
Blogs is a dynamic environment that can be a place to share information broadcasting, even feedback, and share thoughts with others
- Wikis that enable learners and educators to edit, add, remove, or change the content
- Social Networking Sites
SNS is designed to facilitate collaboration, communication, and sharing over network with different users all over the world. SNS also enable users to share personal profiles, activities, and message. It is very suitable for learning purpose. Social network also be critical in organization.

Social learning brings various advantages for learners or educators. Social computing for learning provides flexibility in learning because social learning, students can engage information and widely shared [8]. Other research found that social learning benefits such as:

- Knowledge construction between experts and also learners.
- Collaborative work between users will increase problem solving.
- When the users active, they can learn easily.

Social learning, we know will give so much benefit for learners and educators. But still there are challenges to implement social learning [9]. Some of the challenges are: regarding to privacy issues, managing knowledge, choosing the best tools, overcoming cultural barriers, user behavior, and competency of using information technology. Choosing the best tools to support learning activities is crucial.

III. METHODOLOGY

This research methodology was carried out with various method such as:

Collecting Data Methods

- Literature Study
The author will use the book for collecting materials and theories to support the research process. It is carried out by collecting references closely related to the theme presented by the author. Literature review will help author to define

the real problems and real case of social network and social learning.

- **Field Study**

Field study is used to do the observation about the learning process using social media.

Observation

The author observes learning activities of students in the class to look for phenomena that support the research. The background in conducting this research can be determined by doing so.

Questionnaire

The author will make questionnaires and distribute them to some students of XYZ university to find the data that we need for this research.

IV. RESULT AND ANALYSIS

A. Result

The author conducts the study by sharing the questionnaires to 80 students who follow Short Semester 2015 for Practicum Subjects under the guidance of Information System Laboratory. The question of the questionnaire is designed to find the most appropriate tools and method the students used for learning. The questions are:

- If you are having problems to find materials for subject, what kind of media do you use to help you improve the understanding of the materials?
- If you are given a tutorial video as a learning supporting material. Do you think it will help your understanding?
- If there is a tutorial video as learning materials, what media do you choose to access the tutorial video?

After all of the respondents gave their feedback. The results obtained are:

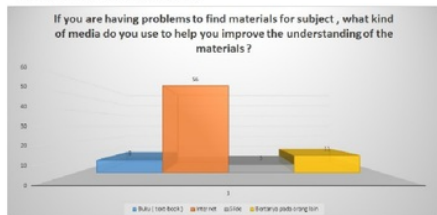


Fig. 1. Question 1 Result

For the first question as many as 56 of 80 students answer: they choose internet as a media to search for additional material that they do not understand. 8 people choose books, 5 people choose slide, and 11 people choose to ask other people. This shows that internet is really bring a big impact in their learning activities, most of the information they find in internet and they are familiar with internet.



Fig. 2. Question 2 Result

For the second question as many as 63 of 80 students answer: tutorial video will help them in improving the understanding. Video can be found in many social networking sites.

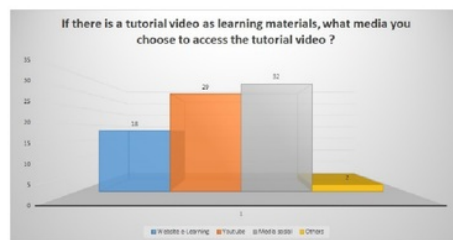


Fig. 3. Question 3 Result

For the third questions as many as 32 of 80 students choose social media as media that can be used to access the tutorial video. 18 people choose e-learning website, 29 people choose Youtube, and 2 other people choose others.

The results of data which the author obtains from School of Information Systems related to the number of non-regular students show that: The total of non-regular students in School of Information Systems xyz University by August 2015 is 1237 of 4101 students. 15% of the students are students who are categorized as non-regular because of their GPA < 2,00, 36% are students who have GPA < 2,00 and unusual cumulative credits. Other data is data regarding the subjects that mostly failed and repeated by the students. From the data obtained, it shows that Information System Development Subject has the highest failure rate, followed by Information and Business Process, Accounting, Algorithms and Programming 1 & 2, Character Building, Statistics, and Introduction to Database Systems.

By the times, media which are used in socializing to others is also growing. With the new discoveries in technology, people have a simple way to interact. One of the most popular is social media. Data reported by TECHINASIA, there are six social media are most often used by people in Indonesia. The social media is Facebook, Twitter, Google+, LinkedIn, Instagram, and Pinterest [10]. This study will take a social media that has features that can be applied to the use of Social Learning as a learning media.

TABLE I. FEATURES COMPARISON BETWEEN SOCIAL MEDIA

Tools	Facebook	Twitter	Google+	LinkedIn	Instagram	Pinterest
Forum	x		x			
Blog						
Media Sharing	x	x	x			
Messaging	x	x	x	x	x	x
Wiki						
RSS						
Chat	x		x		x	
Calendar	x		x			
Tagging	x	x	x		x	x
Own Brand & Visual Design	x		x			
Realtime Activity Stream	x		x			
Groups	x		x			
Friends	x	x	x	x	x	x
Profile Pages	x	x	x	x	x	x
File Sharing	x		x		x	x

B. Features of Facebook Group

This study uses social media Facebook, especially the use of Facebook Group. Here are the features of Facebook Group:

1. Member / Admin write post
2. Admin approve contents
3. Member / Admin manage *post (edit, delete, pin)*
4. Member / Admin add photo or video
5. Member / Admin create *polling*
6. Member / Admin add *files*
7. Member / Admin add member
8. Member / Admin approve new member
9. Member / Admin send messages
10. Member / Admin kick member
11. Member / Admin change *role*
12. Member / Admin create *event*
13. Member / Admin create album
14. Member / Admin tag the other member
15. Member/ Admin create document
16. Member/ Admin manage document
17. Member / Admin like *post*
18. Member / Admin comment *post*
19. Member /Admin manage group

Learning Model

In this study, author makes E-Learning instructional design in the form of schedule, called Plan Predictable Learning Cycle that can be applied within a few weeks according to the needs of learner. In this design, author discusses about the activities in Absorb, Do, and Connect stage and also about the materials that will be provided.

TABLE II. PLAN PREDICTABLE LEARNING CYCLE

		Week				
		1	2	3	4	...
Absorb Activity	Presentation	Slide Show				
		Physical Demo				
		Software Demo				
		Informational file				
		Drumbox				
Do Activity	Practice	Assigned class				
		Team Library				
		Equip Internet				
		Guide Tour				
		Virtual Tour				
Connect Activities	Discovery	Online Museum				
		Drill-and-practice				
		Hands-on				
		Guide Analysis				
		Virtual lab				
Connect Activities	Research	Case Study				

Next step, author will make a Plan Predictable Learning Cycle for three different courses that are practicum courses. The courses are: Information System Development (M0054), Information System Analysis and Design (M0086), and Advanced Information System Analysis and Design (M1006). Plan Predictable Learning Cycle is a plan for materials that will be explain based on the allocated time. Activities in Plan Predictable Learning Cycle is adjustable between activities that have been outlined in theoretical background and features of Facebook Group.

TABLE III. PLAN PREDICTABLE LEARNING CYCLE FOR INFORMATION SYSTEM DEVELOPMENT COURSE

		Week			
		1	2	3	4
		Data Flow Diagram	Data Flow Diagram	Architecture Design	User Interface
Absorb Activity	Presentation	Slide Show	Slide : Determine Process in DFD Level 0	Slide : Determine DFD Level 1 & Content	Slide : Architecture Design
Do Activity	Practice	Drill-and-practice	-	-	-
Connect Activities	Discovery	Case Study	Determine Process in DFD	Determine Hardware	-
Connect Activities	Research	Scavenger hunt	-	-	Find Hardware Types for Architecture Design

TABLE IV. PLAN PREDICTABLE LEARNING CYCLE FOR INFORMATION SYSTEM ANALYSIS AND DESIGN COURSE

		Week			
		1	2	3	4
		Domain Class Diagram	Domain Class Diagram	Usecase Description	Activity Diagram for Use Case
Absorb Activity	Presentation	Slide Show	Slides : Domain Model Class Diagram	Document : Domain Model Class Diagram	Slide : Explanation and Example Usecase Description
Do Activity	Discovery	Case Study	Create Domain Model Class diagram using UML Paradigm 12	Analyze Domain Model Class Diagram based on case given	Upload usecase diagram based on case given
Connect Activities	Research	Scavenger hunt	-	-	Find definition from usecase description components

TABLE V. PLAN PREDICTABLE LEARNING CYCLE FOR ADVANCED INFORMATION SYSTEM ANALYSIS AND DESIGN COURSE

		Week			
		1	2	3	4
		Multi Layer Diagram	Communication Diagram	Updated + Package diagram	Design Data Access Layer
Presentation	Slide Show	Absorb Activity			
	Video : Tutorial Multi Layer Diagram		Slide Show Tutorial	Video : Tutorial Updated	Document : How to Make ERD
Discovery	Case Study	Do Activity			
		-	Create Communication Diagram dari Proses business	Upload Updated Diagram Answer	-
Research	Scavenger hunt	Connect Activities			
		-	Find How to Convert Multilayer Diagram to Communication Diagram	-	Find differences between Class Diagram with ERD

The use of Plan Predictable Learning Cycle can be applied by using Facebook Group features such as writing post, add photo, add video, add file, comment post, and send messages. Activities on learning model above can be seen on Figure 4 until Figure 8. The activities are slide show, drill-and-practice, case study, and scavenger hunt. For slide show activity can use Figure 4 and 5.



Fig. 4. Add Photo or Video

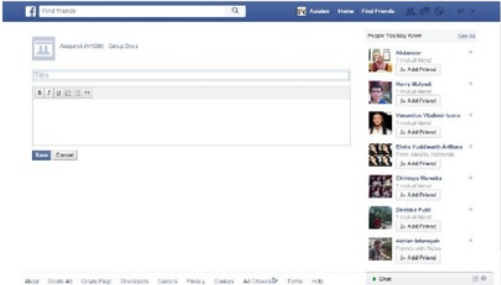


Fig. 5. Create Document

Drill-and-practice activity can use Figure 6. Educator can give member instruction to do exercises from post the exercises details

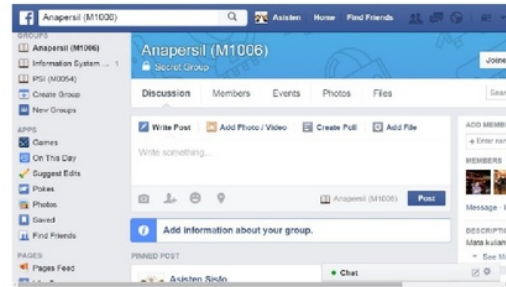


Fig. 6. Create Post

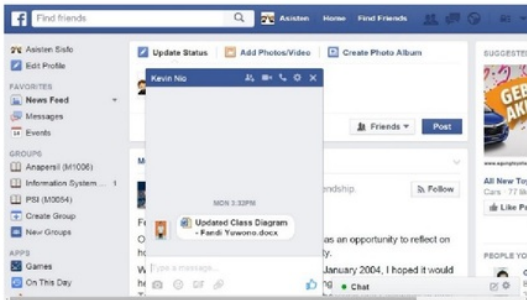


Fig. 7. Send Message

Case study activity can be used after doing the exercises and before submitting it to educator like Figure 7.

Scavenger hunt activity can be use for teaching and learning activities by search from the internet outside the Facebook group. This social media features, especially on facebook (research result). It will give the insight for the software developer to develop e-learning software for support teaching and learning activities in the campus.

V. CONCLUSION

Activities of Plan Predictable Learning Cycle applied in learning simulation in this study include slide show, drill and practice, case study, and scavenger hunt. They can be used to design a material that can be adjusted with educator and learner's needs. The Facebook Group features used in this learning simulation are adjusted with Plan Predictable Learning Cycle made before such as writing post, add photo, add video, add file, comment post, and send messages. The other features can be customized in other activities. The next research, the other authors can explore about the other social media that can use for teaching and learning (e.g. line or Instagram)

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